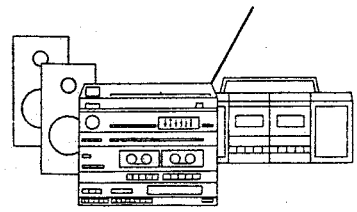
NOKIA
CONSUMER ELECTRONICS



RC 145

1989

NOKIA Unterhaltungselektronik GmbH
Service, Östliche 132, Postfach 15 26
D-7530 Pforzheim

Service-Manual

ITT NOKIA Camping Cassette 717 Autoreverse

⚠ **Sicherheitsbauteil!**
Dieses Symbol kennzeichnet in den Schaltbildern alle Bauteile, die nur durch Originalteile ersetzt werden dürfen.

Bei Reparaturen gültige Sicherheitsvorschriften beachten!

⚠ **Safety Component!**
This symbol identifies in the circuit diagrams all safety critical parts. Replace only with specified part numbers.

Service and repair work to be performed only in accordance with existing safety regulations!

⚠ **Composant de protection!**
Ce symbol indique tous les composants dans les schémas,
qui doivent être remplacés uniquement par des pièces d'orignies.

Pendant le dépannage respecter les régulations du sécurité!

Änderungen vorbehalten
Modifications reserved
Modifications réservées

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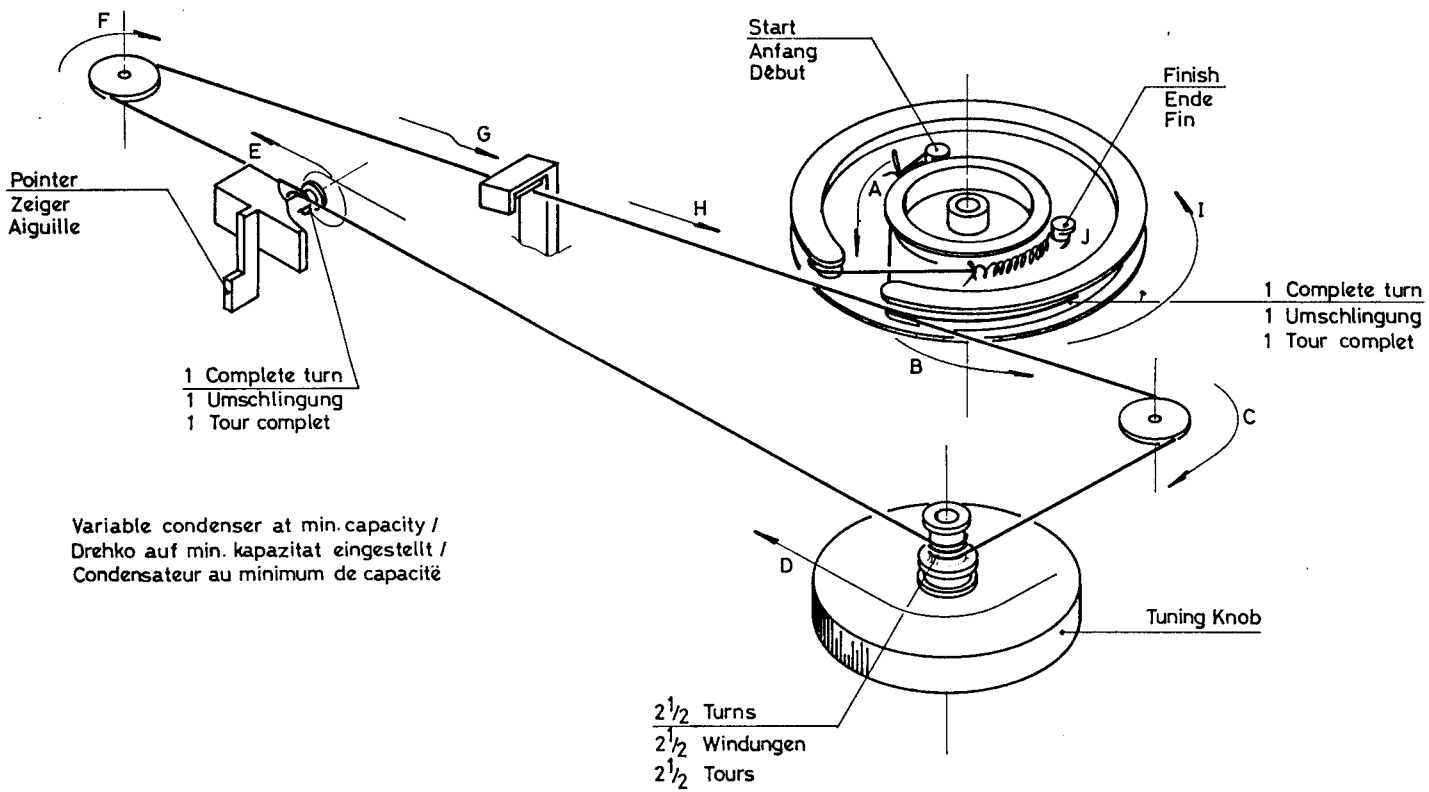
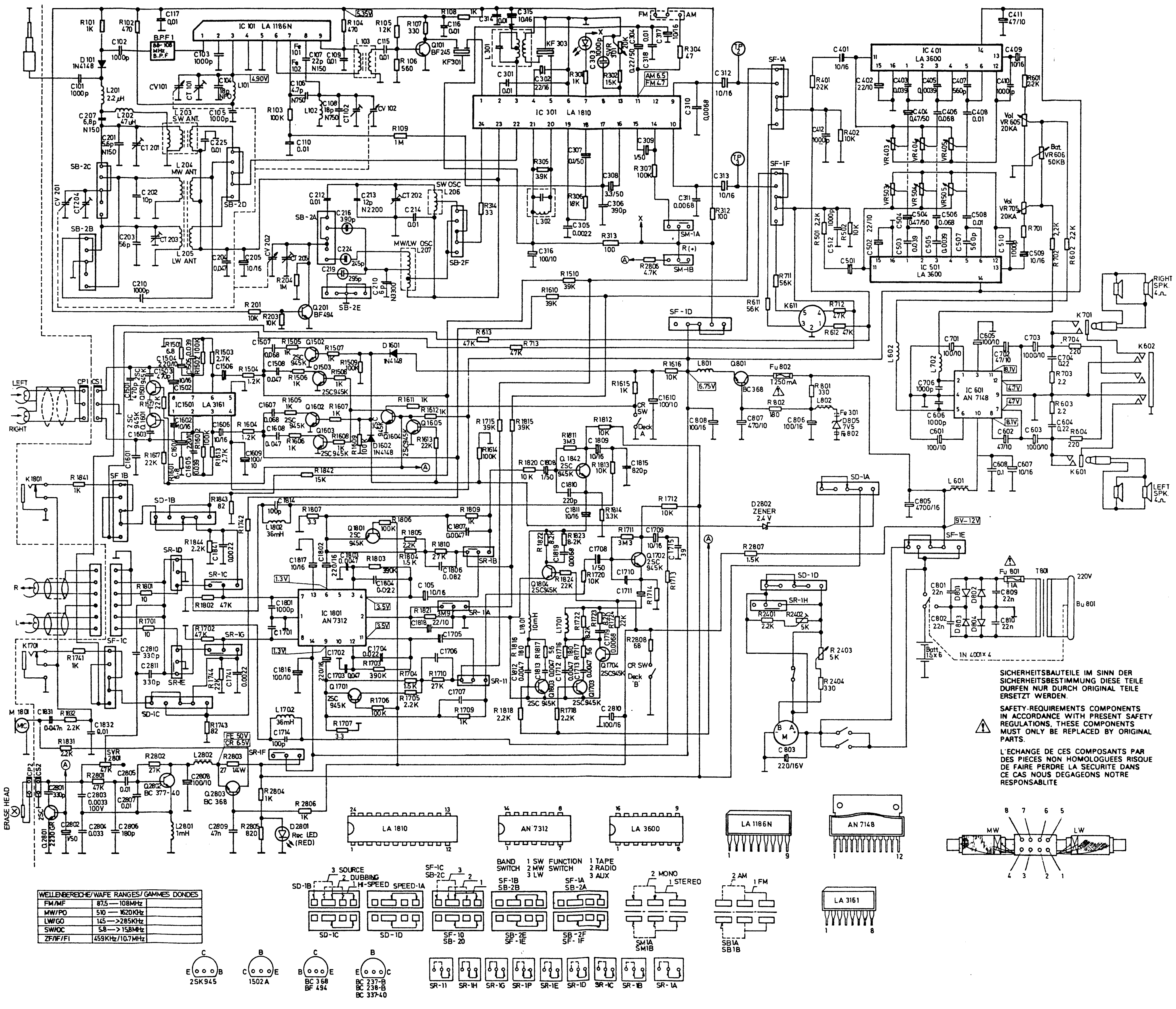
6611 78 20
(740 WE)


F
Start
Anfang
Début
Finish
Ende
Fin
G
E
Pointer
Zeiger
Aiguille
H
A
I
J
1 Complete turn
1 Umschlingung
1 Tour complet
1 Complete turn
1 Umschlingung
1 Tour complet
B
C
Variable condenser at min. capacity /
Drehko auf min. kapazitat eingestellt /
Condensateur au minimum de capacitë
D
Tuning Knob
2 1/2 Turns
2 1/2 Windungen
2 1/2 Tours

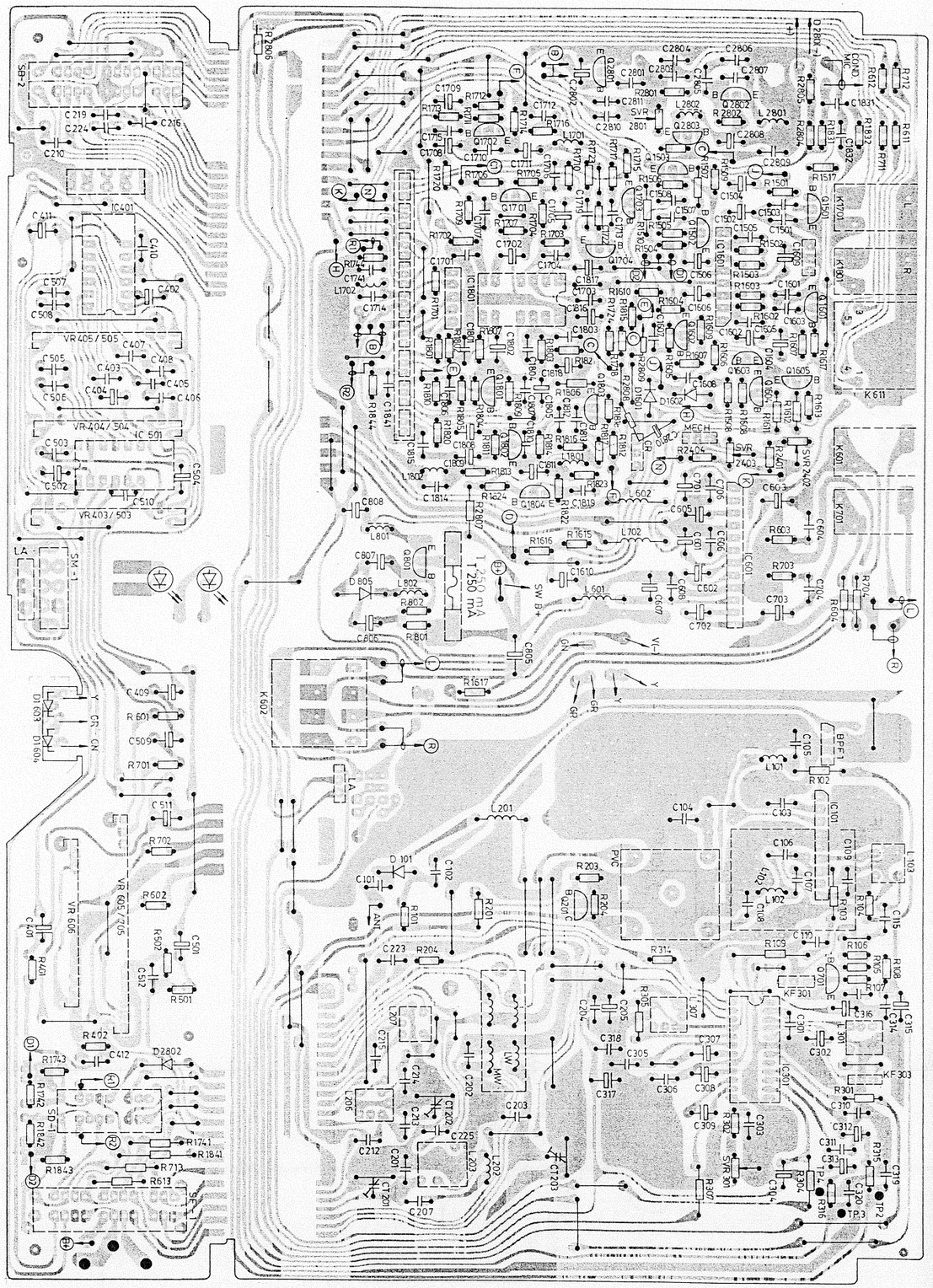


WELLENBEREICHE/WAFE RANGES/GAMMES DONDES		
FM/MF	87,5 — 108MHz	
MW/PO	510 — 1620KHz	
LW/GO	145 —> 285KHz	
SW/OC	5.8 —> 15,8MHz	
ZF/IF/FI	459KHz/10.7MHz	

SICHERHEITSBAUTEILE IM SINN DER SICHERHEITSBESTIMMUNG DIESE TEILE DURFEN NUR DURCH ORIGINAL TEILE ERSETZT WERDEN.

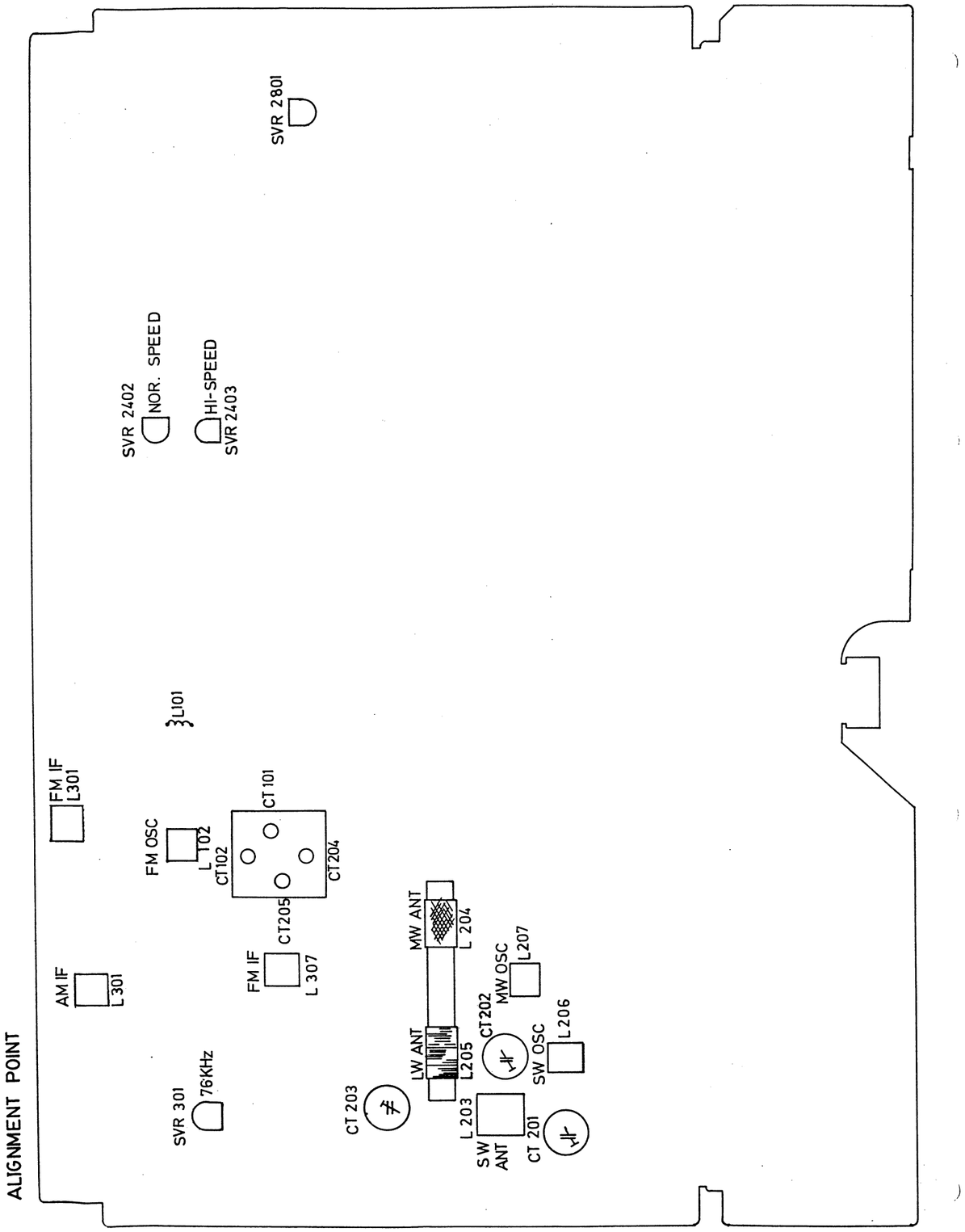
SAFETY-REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

L'ECHANGE DE CES COMPOSANTS PAR DES PIECES NON HOMOLOGUEES RISQUE DE FAIRE PERDRE LA SECURITE DANS CE CAS NOUS DEGAGEONS NOTRE RESPONSABLITE



Pos.-Nr. Ref. No.		Gegenstand Description	Bestell-Nr. Part No.
Integrierte Schaltungen **Integrated Circuits**			
IC 101		IC LA 1186	3763 23 31
IC 301		IC LA 1810	3771 55 17
IC 401, 501		IC LA 3600	3771 49 13
IC 601		IC AN 7148	3771 49 12
IC 1601		IC LA 3161	3768 98 29
IC 1801		IC AN 7312	3771 49 11
Transistoren **Transistors**			
Q 101, 201		2 SC 2787 LF	3614 48 49
Q 801, 2803		2 SC 2236 Y	3614 45 67
Q 1501 - 1503, 1601 - 1605, 1701 - 1704, 1801 - 1804		2 SC 945 L	3614 37 94
Q 2801		2 SC 2230 GR	3614 52 99
Q 2802		BC 337- 40	3614 41 05
Dioden **Diodes**			
D 101, 1601, 1602		1 SS 141 - 4	3656 31 73
D 301		LED TLR 208 GN	3681 16 10
D 801 - 804		1 N 4001	3657 11 05
D 805		GZA 7,5 Y	3656 32 43
D 1603, 1604		LED SLP 1838 - 09	3681 17 44
D 2801		LED TLR 208 RT	3681 16 09
D 2802		GZA 2,0 X	3656 32 42
Spulen **Coils**	**Filter** **Filters**		
	L 103	FM	4552 71 98
	KF 301	CERAMIC	4552 87 60
	KF 303	CERAMIC	4552 94 53
	F 301		4552 93 89
	F 302		4552 71 97
	BPF 1		4552 93 91
L 101		FM	4552 93 90
L 102		FM/OSC	4543 20 07
L 103		FM	4552 71 98
L 201		2,2 μH	4543 19 32
L 202		47 μH	4543 97 97
L 203		KW	4543 05 27
L 204 - 205			4543 34 07
L 206		SW	4545 82 12
L 207		MW	4543 22 79
L 601, 801, 802, 2802			4543 12 69
L 602, 702			4543 18 14
L 1702, 1802			4543 15 70
L 1701, 1801		10 μH	4543 20 64
L 2801, 2803			4543 14 59
Potentiometer **Trimmer Resistors**			
SV 301		10 K	3111 86 59
VR 403 - 405			3118 90 87
VR 605			3118 90 85
VR 606			3118 90 86
R 2402, 2403		4,7 K	3111 85 84
SV 2801		50 K	3111 87 36

Pos.-Nr. Ref. No.	Gegenstand Description	Bestell-Nr. Part No.
Schalter **Switches**		
SRA-1		4112 95 78
SB 1		4112 95 80
SD 1		4112 96 83
SF 1		4112 95 79
SM 1		4112 95 81
Trimmer		
CT 201-203	10 PF	3412 90 01
Allgemeine Bauteile **General Parts**		
Bedienungsanleitung Operating Instructions		6612 55 86
Mikrofon Microphone		4317 02 13
Buchse TA/TB Socket TA/TB		4145 08 82
Ohrhörerbuchse Earphone socket		4144 04 68
Netzkabel Mains lead		4147 01 26
Kabel LP-Box Cable LP-Box		4148 88 20
Drehko Capacitor		3418 80 50
Sicherungshalter Fuse holder		4157 04 51
K 602 Buchse/Socket		4144 80 55
F 801 Sicherung/Fuse		4375 20 01
PT 801 Netztransformator Mains transformer		4511 33 62
Motor		4432 92 82
Antriebs-Rad Motor Driver Wheel Motor		7548 42 31
Micro-Schalter Micro switch		4188 04 48
Feder Spring		7358 31 09



Tuner Alignment

Equipment

1. Oscilloscope
2. AM IF Sweep generator
3. FM IF Sweep generator
4. AM RF Sweep generator
5. FM RF Sweep generator
6. Radiation loop
7. SW RF network
8. Frequency counter
9. FM Stereo generator
10. Bandpass filter 200Hz-1.5KHz or 19KHz filter
11. VTVM

AM IF Alignment

1. Connect AM IF Sweep to radiation loop.
2. Switch set to MW position.
3. Connect oscilloscope input to TP2 of set.
4. Turn PVC to fully open position.
5. Adjust L301 for best peak and maximum output.

MW RF Alignment

1. Connect MW RF signal to radiation loop.
2. Connect oscilloscope input to TP2 of set.
3. Turn PVC to fully closed position and adjust L207 for 510KHz coverage marker.
4. Turn PVC to fully open position and adjust PVC osc. **trimmer CT 205 for 1620 coverage marker.**
5. Repeat 3 and 4 until coverage is correct.
6. Turn PVC to 600KHz marker, adjust L204 for maximum amplitude.
7. Turn PVC to 1400KHz marker, adjust PVC ant. **trimmer CT 204 for** maximum amplitude.
8. Repeat 6 and 7 for satisfactory tracking.

LW RF Alignment

1. Connect LW RF signal to radiation loop.
2. Connect oscilloscope to TP2 of set.
3. Turn PVC to fully close and fully open position and check for coverage to be within 145^{+3}_{-6} KHz to >285 $^{+}$-KHz
4. Turn PVC to 160KHz, adjust L205 for maximum amplitude.
5. Turn PVC to 250KHz, adjust to CT 203 for maximum amplitude.

SW RF Alignment

1. Disconnect telescopic antenna. Connect SW RF signal to SW RF network (see figure 1) and connect to ANT and ground.
2. Connect oscilloscope input to TP2 of set.
3. Turn PVC to fully closed position and adjust L206 for 5.8MHz coverage marker.
4. Turn PVC to fully open position and adjust CT202 for 16.2MHz coverage.
5. Repeat 3 and 4 until coverage is correct.
6. Turn PVC to 6.5MHz marker and adjust L203 for maximum amplitude.
7. Turn PVC to 14.5MHz marker and adjust CT201for maximum amplitude.
8. Repeat 6 and 7 for satisfactory tracking.

FM IF Alignment

1. Connect FM IF Sweep signal to TP1.
2. Connect oscilloscope input to TP2 of set.
3. Adjust L103 and L 302 for maximum and symmetrical "S" response curve.

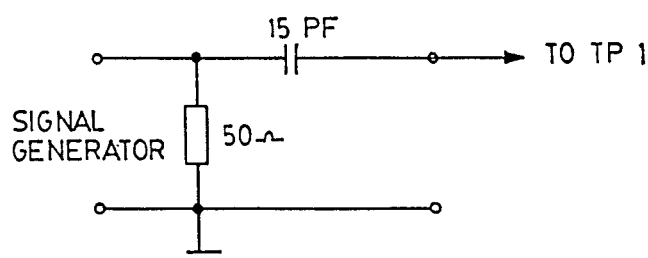


FIG. 1

SANYO Electric (Penang) Sdn. Bhd.
BAYAN LEPAS FREE TRADE ZONE
PENANG, MALAYSIA.
FAX: 04-837732 TEL. NO: 04-832826

Title: Alingment Procedure- Camping Cass 717 Camping Cass 715

Written By: | Approved By: | Date: | Sheet 3 cont'd 4

FM RF Alignment

1. Connect FM RF signal to ANT
2. Connect oscilloscope input to TP2 of set
3. Turn PVC to fully close position, adjust L102 for 87.35 MHz coverage marker.
4. Turn PVC to fully open position, adjust PVC osc trimmer CT 102 for 108.25 MHz coverage marker.
5. Repeat 3 and 4 until coverage is correct.
6. Turn PVC to 90MHz marker adjust L101 for maximum amplitude.
7. Turn PVC to 106MHz marker adjust PVC ant trimmer CT 101 for maximum amplitude.
8. Repeat 6 and 7 for satisfactory tracking.

Decoder Alignment

1. Connect frequency counter to IC 301 pin in such a way that there is no frequency deviation, e.g. via a 100K resistor. Align 76 KHz by adjusting SVR 301

Cassette Section

Equipment

1. Oscilloscope.
2. VTVM
3. Frequency counter

SANYO Electric (Penang) Sdn. Bhd.
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Title: Alingment Procedure- Camping Cass 717 Camping Cass 715

Written By: | Approved By: | Date: | Sheet 4 cont'd -

TAPE SPEED ALIGNMENT (FOR CAMPING CASS 715 ONLY)

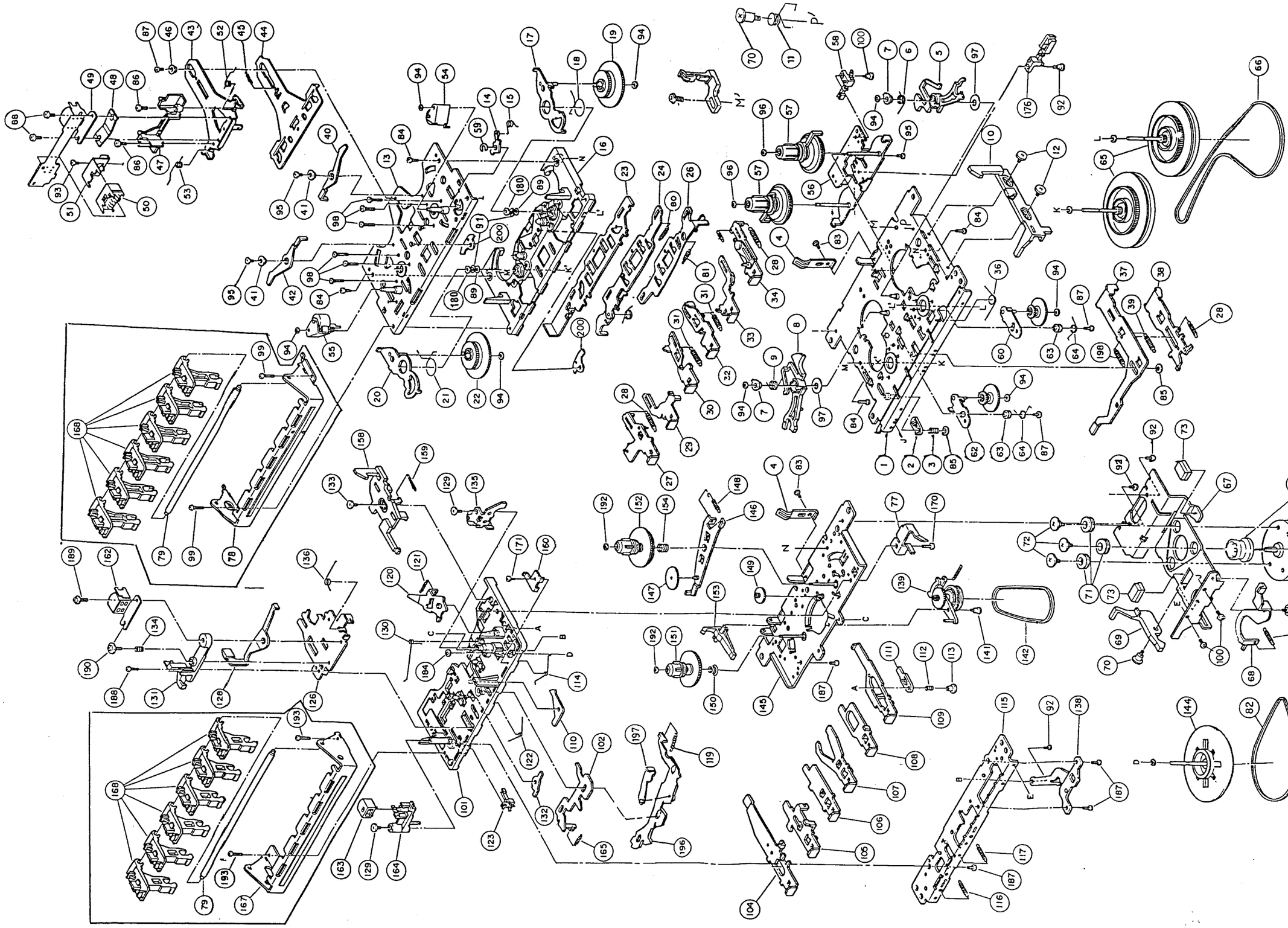
1. Play test tape MTT 211.
2. Adjust SVR 2402 for tape speed 315Hz $\pm$ 0.5%.
3. Check tape speed of the other mechanism. Switch to Hi-speed position, tape A at Rec position, adjust SVR2403 for high-speed 6300 $\pm$ 0.5%.

AZIMUTH ALIGNMENT
TAPE A AND TAPE B

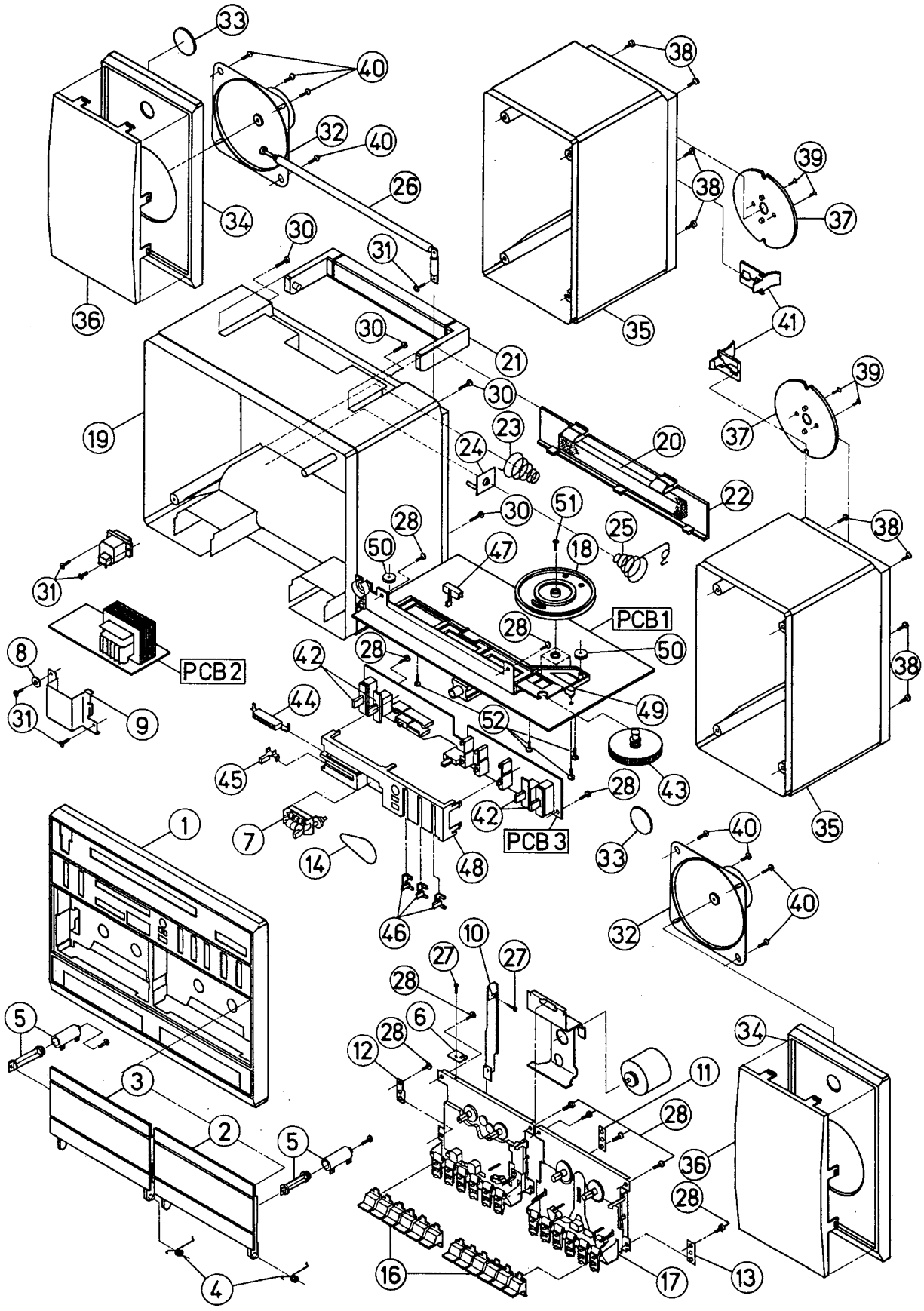
1. Clean R/P head and erase head with soft cotton.
2. Connect VTVM and oscilloscope at speaker socket L & R.
3. Play test tape MTT 114.
4. Adjust R/P head screw for maximum output for both channels.
5. Apply appropriate glue to fasten the screw.

BIAS VOLTAGE ALIGNMENT

1. Connect VTVM, oscilloscope and frequency counter across R1701 for left channel and R1801 for right channel.
2. Set stereo/mono switch to stereo position (f1).
3. Switch set to recording.
4. Adjust SVR2801 to obtain reading 5.5mV (CR ON) 4mV (FE ON).
5. Check bias sociliator frequency to be F1 82 $\pm$ 3KHz .
6. Switch set to radio position and stereo/mono switch to mono position (f2) and check f2 to be f1 - (3$\pm$ 1)KHz.



Pos.-Nr. Ref. No.	Bestell-Nr. Part No.	Pos.-Nr. Ref. No.	Bestell-Nr. Part No.
2	8681 35 35	82	7618 42 89
3	7358 22 17	89	7726 06 24
4	7358 22 34	91	7726 06 27
5	8318 54 03	94	8188 03 98
6	7358 42 41	96	7726 05 46
8	8318 54 04	97	7726 06 26
9	7358 42 40	101	8681 35 34
10	8318 53 98	102	8318 49 20
11	7358 44 39	104	8318 49 22
13	8318 53 81	105	8318 50 14
14	8318 53 89	106	8318 49 24
15	7358 42 32	107	8318 49 25
16	8318 54 85	108	8318 49 26
17	8318 53 79	109	8318 49 27
18	8318 53 95	110	8318 49 28
19	7525 12 27	111	8318 54 88
20	8318 53 81	113	8681 35 36
21	7358 42 37	114	7358 22 18
22	7525 12 28	115	8318 49 74
23	8318 54 90	116	7358 22 19
24	8318 53 74	117	7358 22 20
26	8318 53 75	119	7358 22 21
27	8318 53 77	120	8318 49 30
28	7358 42 26	121	7358 22 22
29	8318 53 86	122	7358 22 35
30	8318 53 88	123	4188 04 47
31	7358 42 27	126	8318 54 82
32	8318 53 87	128	8318 49 32
33	8318 53 85	130	7358 22 26
34	8318 53 76	131	8318 54 83
36	7358 42 25	132	8681 35 43
37	8318 53 94	133	7858 01 61
38	8318 53 97	134	7358 22 27
39	7358 42 36	135	7538 33 86
40	8318 54 01	136	7358 44 37
42	8318 54 02	138	8318 49 33
43	8318 53 90	139	7424 01 42
44	8318 53 91	142	7618 42 39
45	7358 42 35	144	7518 41 09
47	8318 53 92	145	8681 43 12
48	8318 53 93	146	8318 54 89
49	4335 93 36	147	7525 10 84
50	4112 97 34	148	7358 22 30
51	8318 53 96	149	7525 10 78
52	7358 42 33	150	7358 44 38
53	7358 42 34	151	6253 41 65
54	7538 33 83	152	6253 42 04
55	7538 33 84	153	8681 35 38
56	8318 54 86	154	7358 22 31
57	6253 42 05	158	8681 35 39
58	4188 05 32	159	7358 22 33
60	8318 53 82	160	8318 49 77
62	8318 53 83	162	4335 93 54
64	7358 42 38	163	4337 91 83
65	7518 41 11	165	7358 22 24
66	7618 42 82	167	8318 53 73
67	8318 54 93	168	8681 35 40
68	8318 54 92	176	4188 05 31
69	8318 49 43	180	7726 06 28
71	6552 23 41	184	7726 05 47
72	7858 01 63	190	7858 01 76
76	7358 44 43	192	8188 02 66
77	8318 50 70	196	8318 49 73
78	8318 54 94	197	8318 49 75
79	7578 05 58	198	7358 42 31
80	7358 42 28	200	8318 53 99
81	7358 42 29		


PCB1
PCB2
PCB3

Pos.-Nr. Ref. No.	Bestell-Nr. Part No.	Pos.-Nr. Ref. No.	Bestell-Nr. Part No.
1	6135 50 56	32	4311 93 21
2	6135 50 57	33	4311 94 02
3	6135 50 58	34	6135 49 66
4	7358 23 87	35	6135 50 59
5	6351 03 01	36	6418 37 72
6	8681 35 70	37	8681 43 11
7	6467 16 95	41	8622 25 02
9	8318 48 57	42	6328 08 02
10	8318 48 58	43	6328 08 03
14	7618 42 30	44	6328 08 04
16	6318 32 43	45	6328 08 06
18	7552 26 01	46	6328 08 81
19	6135 49 63	47	6443 03 49
21	6341 49 38	48	8681 43 10
22	6135 48 84	49	8681 40 18
23	7358 24 51	50	7551 31 47
24	7348 12 69	PCB 1	6913 19 94
25	7348 12 86	PCB 2	6913 25 50
26	4471 90 19	PCB 3	6913 19 95